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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,956	12/15/2003	Kwang Myung Cho	AFB00657	9637

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ESC/JAZ
U.S. AIR FORCE
40 WRIGHT ST.
HANSCOM AFB, MA 01731

EXAMINER

GREGORY, BERNARR E

ART UNIT

PAPER NUMBER

3662

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/734,956	Applicant(s) CHO ET AL.	
	Examiner Bernarr E. Gregory	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-6 is/are pending in the application.

 4a) Of the above claim(s) ____ is/are withdrawn from consideration.

5) ☒ Claim(s) 4-6 is/are allowed.

6) ☒ Claim(s) 1 and 2 is/are rejected.

7) ☒ Claim(s) 3 is/are objected to.

8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

 a) ☐ All b) ☐ Some * c) ☐ None of:

 1. ☐ Certified copies of the priority documents have been received.

 2. ☐ Certified copies of the priority documents have been received in Application No. ____.

 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date ____.

4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. ____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: ____.

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Knaell et al (U.S. Patent 5,394,111-A).

With respect to independent claim 1, Knaell et al (U.S. Patent 5,394,111-A) is plainly a radar used to do mapping, particularly in three dimensions. The text of Knaell et al (U.S. Patent 5,394,111-A) makes plain that the device may be ISAR (col. 8, lines 25-30). The first method step of claim 1 is fully met by Knaell et al (U.S. Patent 5,394,111-A) in that the transmitter in Knaell et al (U.S. Patent 5,394,111-A) is a frequency-stepped, chirp transmitter (col. 8, lines 10-24). Although Knaell et al (U.S. Patent 5,394,111-A) does not mention pulse pairs, such pairs are inherent in any ISAR system. As evidence of this, please note the first full paragraph of the cited article, "Four Practical Applications of Joint Time-Frequency Analysis." This article plainly states that ISAR radars transmit a burst of M pulses. Since M must be at least two, the transmission of these M pulses by an ISAR radar meets the limitation of transmission of a pair of pulses. The second method step of claim 1 is met by the mapping done in the method of operation or use of the Knaell et al (U.S. Patent 5,394,111-A) device.

With respect to the further limitations of dependent claim 2, the increase in frequency of successive pulses is inherent in frequency stepping; however,

Figure 1 of the article, "Four Practical Applications of Joint Time-Frequency Analysis" plainly shows the increase in frequency with the graph at the top of that figure.

3. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 4-6 are allowable over the prior art of record.
5. The Specification is objected to under 37 CFR 1.71 due to the typographical error at line 7 of the page starting with the heading "DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT," where "linear phase" should read "linear frequency" to agree with the acronym "LFM," and due to the lack of page numbers throughout the Specification. **Correction is hereby required.**
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Couvillon et al ('725) and Chavez ('742) are of interest for using chirped pulse pairs.

Long et al ('742) is of interest for showing an SAR radar where the frequency of the transmitted pulses varies with time.

Peregrim et al ('445) is of interest for showing an SAR radar where the frequency of the transmitted pulses varies with time.

Hightower et al ('361) is of interest for showing chirping, subpulses, and "stepped intermediated frequencies."

Barron et al ('784) is of interest for showing the use of subpulses.

Gouenard et al ('111) is of interest for showing chirping, pulses, and variation of transmitted frequency as a function of time.

Cho et al ('809) is of interest for being a patent issued from a related application of the inventors in the instant application.

The Schimpf et al article is of interest for discussion of frequency-stepped chirps.

The Bourke article is of interest for discussion of stepped frequency modulated chirps.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernarr E. Gregory whose telephone number is (703) 306-5765. The examiner can normally be reached on weekdays from 7:30 AM to 4:00 PM. **Please note that after 04 April 2005, the telephone number for the examiner will be (571) 272-6972.**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza, can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

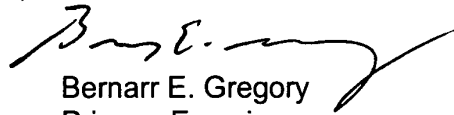
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Bernarr E. Gregory", with a long, sweeping horizontal stroke extending to the right.

Bernarr E. Gregory
Primary Examiner
Art Unit 3662